

THE MINNESOTA GEOLOGIST

OFFICIAL BULLETIN OF

GEOLOGICAL SOCIETY OF MINNESOTA

VOL XIII

SPRING 1956 NUMBER

NO. 1

When a scientific discovery or invention
has been brought to some practical
application, the work of scientists
is not finished, it has only begun.

H. A. Spoehr.

GEOLOGICAL SOCIETY OF MINNESOTA

EDITORIAL STAFF

Loretta E. & Elmer Koppen Editors
3376 Brunswick Ave., Minneapolis 16, Minn.

STAFF ASSISTANTS

Hazon T. Perry Mr. & Mrs. J. C. Engen Dr. & Mrs. Bert Carlson
Mr. & Mrs. Chas. B. Howard Mr. & Mrs. J. Norle Harris

OFFICERS

Lawrence W. King, President L. D. Hargrove, Director
Charles H. Havill, Vice-President Lorretta E. Koppen, Director
Ara P. Rickmire, Treasurer Dr. Bert Carlson, Director
Chas. B. Howard, Director Clark Pottingill, Director

FOUNDER

Edward P. Burch *

PAST PRESIDENTS

Junior F. Hayden * Dr. Edward H. Mandell
Algol R. Syme * Hal E. McMethy
Charles H. Preston * J. Norle Harris
Jes. W. Zalusky Dr. Bert R. Carlson

MEETINGS: October to May inclusive, 7:30 P.M. every Tuesday not a holiday,
Auditorium, Minnesota Museum of Natural History, University of Minnesota,
17th Ave. S. E. and University Avenue. Visitors welcome.

FIELD TRIPS: May until October inclusive.

ANNUAL DUES: Residents in a 50 mile radius of the Twin Cities \$ 3.00 plus
\$ 1.00 additional for husband, wife, or dependent family members, for
students and non-residents, \$ 1.00.

AFFILIATE MEMBER

MIDWEST FEDERATION OF MINERALOGICAL AND GEOLOGICAL SOCIETIES

and

THE AMERICAN FEDERATION OF MINERALOGICAL SOCIETIES

* Deceased

Bulletin Board

TERMINATE

FIELD TRIP NOTICES

- June 17 Barren Hills, Wis.
Leader - Hal E. McWathy
- June 24 Marion S. Skahan home.
- July 1 St. Croix Valley
Leader - Miss Elsie Hinckley
- July 12-15 American Federation of Mineralogical Societies convention -
held in conjunction with the Midwest Federation of
Mineralogical and Geological Societies.
- July 14-28 Two week western field trip.
Leader - Dr. Bert Carlson.
- August 5 Picnic at the L. W. King summer home on the St. Croix
near Copas Minn.
- Aug. 11-12 Baraboo, Wis.
Leader - Dr. Robert Sloan.
- August 26 Mankato and vicinity.
Leader - Arthur D. Ronay.
- Sept. 9 Redwing, Minn.
Leader - Elmer H. Brown.
- Sept. 22-23 Pipestone and Rock counties.
Leader - Dr. Bert Carlson.
- Oct. 6-7 Cuyuna Range.
Leader - Elmer H. Brown.

THE 9th ANNUAL CONVENTION AND EXHIBITION OF
THE AMERICAN FEDERATION OF MINERALOGICAL SOCIETIES

JULY 12, 13, 14, 15, 1956

held in conjunction with

THE MIDWEST FEDERATION OF MINERALOGICAL & GEOLOGICAL SOCIETIES

Host Society
Minnesota Mineral Club

to be held in

HOME ACTIVITIES BUILDING
MINNESOTA STATE FAIR GROUNDS
St. Paul, Minnesota.

See the largest Gem and Mineral exhibition ever held in the midwest -

-- The Western World's finest Jada Collection -- Commercial and non-commercial booths -- glass front display cases -- guides -- unlimited parking space -- camp grounds -- trailer park --
-- Entertainment -- Field Trips -- Lectures -- Fun Galore --

PROGRAM

THURSDAY, JULY 12

9:00 A.M. REGISTRATION --- Home Activities Building ---
cooperation of St. Paul Chamber of Commerce

10:00 A.M. MIDWEST FEDERATION BUSINESS MEETING ---

Wm. J. Bingham, presiding officer

11:00 A.M. JUDGING OF EXHIBITS ---

begins ---

1:30 P.M. AMERICAN FEDERATION BUSINESS MEETING ---

A. L. Flory, presiding officer

2:00 P.M. OLD TIMERS MEETING ---

3:00 P.M. LECTURE --- ART OF LAPIDARY

Wm. J. Bingham

6:45 P.M. Bus trips (free) to Walker Art Center and Minneapolis Institute of Arts to view two of the finest Jada collections in the Western World.

7:30 P.M. LECTURE --- MINERALS THROUGH THE CAMERA LENS ---

John F. Mikolcic

9:00 A.M. to 6:00 P.M. --- Show open to members, dealers, and out of state visitors only. This allows proper time for registrations, judging of exhibits, acquaintance and reacquaintance of members.

6:00 P.M. to 10:00 P.M. --- Show open to general public.

FRIDAY, July 13, 1956.

9:00 A.M. DEALERS ASSOCIATION BUSINESS MEETING.

9:30 A.M. BUS TRIPS (free) to the Walker Art Center and the Minneapolis Institute of Arts to view Jade exhibits.

10:00 A.M. OFFICIAL OPENING OF GEM AND MINERAL SHOW ---

INTRODUCTIONS --- Marland Mills, President Minnesota Mineral Club
WELCOME ADDRESS --- Governor Orville L. Freeman

A. L. Flagg, President, American Federation
W. J. Bingham, President, Midwest Federation

D. A. Thomas, National Convention Chairman

PRESENTATION OF TROPHIES AND AWARDS

Woodruff Trophy, Midwest Trophy, awards
Chairman of Judges

1:30 P.M. BUS TRIPS (free) to the Walker Art Center and the Minneapolis Institute of Arts to view Jade exhibits.

2:30 P.M. LECTURE --- LIGHT WAVES AND COLOR IN GEMS ---

Charles Smart

2:30 P.M. BUS TRIP along the scenic St. Croix valley to Taylors Falls ---
Dr. Leo A. Thiel, chairman and professor of Geology,
University of Minnesota

7:30 P.M. LECTURE --- STORY OF THE MANUFACTURE OF DIAMONDS

M. Barnes, General Electric Co.

10:00 A.M. to 10:00 P.M. SHOW OPEN TO GENERAL PUBLIC

SATURDAY, JULY 14, 1956. --- 10:00 A.M. to 10:00 P.M. OPEN TO GENERAL PUBLIC

9:30 A.M. BUS TRIPS (free) to Walker Art Center and Institute of Arts.

9:30 A.M. BUS TRIP field trip to So. St. Paul quarry to collect fossils.

9:30 A.M. MIDWEST FEDERATION BUSINESS MEETING

10:45 A.M. AMERICAN FEDERATION BUSINESS MEETING

1:30 P.M. BUS TRIP (free) to Walker Art Center and Institute of Arts

3:00 P.M. LECTURE --- DIAMONDS FROM THE GROUND UP ---
Gladys Babson Hannaford, H. W. Ayer Inc. of New York
6:00 P.M. BANQUET --- Fiesta Room --- Lowry Hotel, St. Paul ---

8:00 P.M. SUMMER 'POPS' CONCERT AND ICE SHOW

SUNDAY, JULY 15, 1956

10:00 A.M. BUS TRIP to Walker Art Center and Institute of Arts ---

3:00 P.M. LECTURE --- DIAMONDS FROM THE GROUND UP ---

10:00 P.M. SHOW OFFICIALLY CLOSES.

10:00 A.M. to 10:00 P.M. --- SHOW OPEN TO THE GENERAL PUBLIC

EDITORS NOTE: There are 28 geological plaques erected at various places throughout Minnesota. In an effort to acquaint you with the location and the text of the plaques we will publish several plaque texts in each issue of the Bulletin. 10 plaque texts have already been published.

GEOLOGY OF MINNESOTA

RED WING REGION

During the great ice ages the landscape of Minnesota was profoundly altered by continental glaciers in 4 major epochs of glaciation. In this area, as elsewhere, the closing stage of each epoch was characterized by the release of floods of meltwater which eroded the broad valley of the Mississippi River 200 feet deeper than the present channel. Because the tributary streams carried less water than the main river they were unable to cut down as rapidly, and consequently their valley floors had steeper slopes.

As the volume of meltwater diminished with the depletion of the ice, the velocity of the main stream was reduced and it was no longer able to remove all of the sediment contributed by its high-gradient tributaries. Thus the valley was filled to its present level, and exhibits a remarkable series of meanders, oxbow lakes, side channels, sloughs, swamps, and tillable land.

GEOLOGY OF MINNESOTA

WHITEWATER STATE PARK

The bold and picturesque bluffs of the Whitewater Valley, from the Jordan sandstone below to the massive Onocota dolomite at the top, represent deposition during a hundred million years. Much of the erosion of these marine sedimentary rocks occurred later, during the great ice ages, caused by meltwater from the glaciers descending rapidly from the highlands into the flooded valley of the Mississippi River.

During the glacial high-water stages in the Mississippi Valley the velocity of the water in the Whitewater Valley was retarded. In consequence the sediments brought to the Whitewater River by its tributaries could not be carried any further and were deposited on the valley floor.

Later, as the water level in the Mississippi Valley was lowered, the Whitewater River gained velocity and eroded downward into the accumulated sediments to the level of its present channel, leaving high on the valley walls alluvial terraces of sand and gravel to mark its elevation when the Whitewater River stood at a higher level.

Erected by the Geological Society of Minnesota
In cooperation with Department of Highways
State of Minnesota

GEOLOGY OF MINNESOTA

GRAND MARAIS

The harbor of Grand Marais is the result of unequal weathering or erosion of two types of rock. One of these, called diabase, resulted from the cooling of molten material which was forced between two earlier lava flows. The dark, massive diabase, being very hard and resistant to wave action, has become the outer barrier to the harbor, while the lava, which was much fractured and easily eroded, was worn away to form the harbor basin.

To the west of Grand Marais, the serrated crest of the Sartooth Range, clearly visible from the harbor breakwater, is another example of unequal erosion. Here the relatively soft basalt and the more resistant diabase have, through the process of weathering, produced the notched profile of the hills along the coast.

To the east of Grand Marais rise the hills near the mouth of the Arrowhead River, while to the north, along the Gunflint Trail, are older rocks. At Saganaga Lake, the Saganaga granite, one of the oldest granites in North America, marks a core of the ancient mountains of the Laurentian Highlands.

GEOLOGY OF MINNESOTA

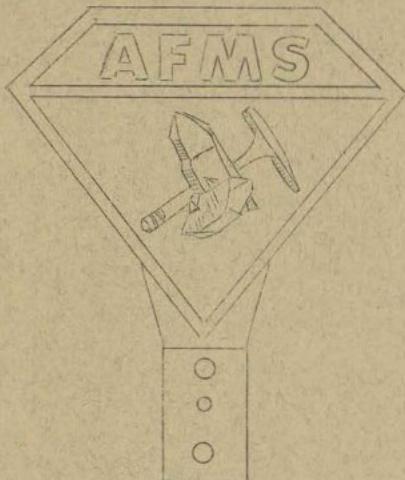
LAKE HARRIET REGION

The continental glaciers spreading over Minnesota during the great ice ages brought vast quantities of rock material from the north to be dumped indiscriminately during the recession of the ice. Old river valleys were filled and belts of hills were formed as conditions changed. The Lake Harriet landscape has such an origin.

Leaving the present channel of the Mississippi River at the Plymouth Avenue bridge, a preglacial valley runs almost directly south beneath Lake of the Isles, Lake Calhoun and Lake Harriet to the Minnesota River at Bloomington. This valley was mostly filled but not completely obliterated by glacial deposits. The unfilled portions of the valley are now basins, which are filled by lakes perched high on the glacial drifts. Lake Harriet lies directly over this ancient valley, its surface 250 feet above the valley's rocky floor, and is in a setting of hills piled up while the ice front paused here in its final retreat about 10,000 years ago.

Erected by the Geological Society of Minnesota
In cooperation with Department of Highways
State of Minnesota

AMERICAN FEDERATION OF MINERALOGICAL SOCIETIES



The American Federation of Mineralogical Societies official car emblem is now available to all members of affiliated societies and clubs.

They are attractive and distinctive and are made of durable enameled metal. Brackets are furnished so that they may be easily attached to the trunk, bumper or license plate of your car. Their use on field trips and cross-country tours will serve to identify you and introduce you to others interested in the mineral hobby throughout the country.

The cost of the emblem is 50¢ each including bracket. Send your orders to Lorotta E. Koyen, liaison officer to the Midwest Federation, 3376 Brunswick Ave., Minneapolis 16, Minn.

Report of A. P. Rickmire, Treasurer, Geological Society of Minn.
Oct. 1, 1955 to March 31st, 1956.

RECEIPTS

	Rec'd from dues, 65 of \$ 3.00, 36 of \$ 4.00 and 8 of \$ 1.00	347.00
5/27/55	Books	14.85
6/12	From Mr. King, books	42.00
	From Mr. King, book	3.00
	From Mr. King, trip collection	4.35
6/30	From Mr. Havill, Alexandria trip	253.00
8/7	5 books	15.00
	Collection, Hastings trip	3.50
	Collection, Stillwater trip	3.76
	Collection at Kings	9.70
8/20	Collection Minnetonka trip	5.70
9/18	From Mr. Havill, mine trip	521.50
10/4	From Mr. Havill, southeast Minnesota trip	330.05
	43 books	172.00
12/6	From Mr. King, Winchell reports	44.50
	Rec'd from Mary Lupient, trust fund	\$ 1769.91
	Rec'd from Preston Memorial Fund	230.28
	Rec'd from Louis W. & Maud Hill Family Foundation	144.00
		3240.00
4/24	97 dinners at \$ 2.75	\$ 5384.19
	1 extra dinner (amount returned sickness)	2.75
		5653.69

DISBURSEMENTS

6/6-55	Crook & Hanley, supplies	12.18
	Knollwood Motors	212.34
7/12	L. W. King, expenses scouting trip, which was turned over to the Preston Memorial Fund	35.00
8/7	For Preston Memorial Fund	5.00
9/21	Jefferson Bus Co.	484.88
9/29	Flour City Ornamental Iron Co. for plaques	3240.00
10/3	Postage, Loretta Koppen	10.24
10/5	Jefferson Bus Co.	300.83
10/11	Robert E. Sloan, 10 lectures	125.00
11/1	Supplies, Loretta E. Koppen	28.54
11/9	Harper Bros., books	185.39
1/24	Stamps, Loretta Koppen	6.00
1/31	Crook & Hanley, supplies	25.71
	Flowers, Mrs. Sloan	4.00
	Wm. F. Schroeder, scouting mine trip	35.00
	University of Minnesota	7.45
	Stamps, Loretta E. Koppen	9.50
3/20	Dr. Gruner	12.50
3/27	Dr. Yardley	12.50
4/3	Dr. Mooney	12.50
4/13	O. M. Fether, Federation dues	14.50
4/10	University of Minnesota, film operator	8.76
	Bank service	3.70
4/24	Goffman Union Food Service, 104 suppers	234.00
4/24	Dr. Bert Carlson, cards & postage re long field trip	13.30
4/25	Crooks & hanley, paper & stencils	12.50
4/27	John W. Webb	12.50
4/27	Herbert E. Wright	12.50
4/24	1 extra supper collected & returned	2.75
	Cash on hand, savings acct. 500.00, checking acct. 94.77	594.77
		5653.69

Mr. Hal E. McGehee
2174 Dowwill Ave.
St. Paul, Minn. 8

